

What is claimed is:

1. A wireless communication method, comprising:

transmitting, by an access point (AP), a multi-user ready-to-send (MU-RTS) trigger frame to a plurality of stations (STAs), wherein the MU-RTS trigger frame indicates whether a clear-to-send (CTS) frame response is to be transmitted by each of the plurality of STAs on a primary 20 MHz channel (P20), a primary 40 MHz channel (P40), a primary 80 MHz channel (P80), a primary 160 MHz channel (P160), or a 320 MHz channel, and at least one 20 MHz channel is punctured in the P80, the P160, or the 320 MHz channel.

2. The wireless communication method of claim 1, wherein each user information field of the MU-RTS trigger frame comprises a subfield and an RU allocation subfield, and the subfield and the RU allocation subfield of each user information field in the MU-RTS trigger frame indicate RU allocation information.

3. The wireless communication method of claim 2, wherein the subfield of each user information field in the MU-RTS trigger frame comprises a lower/upper 160 MHz segment subfield.

4. The wireless communication method of claim 3, wherein the lower/upper 160 MHz segment subfield is set to a first value (such as 0) to indicate the P20, the P40, the P80, or the P160; while the lower/upper 160 MHz segment subfield is set to a second value (such as 1) to indicate the 320 MHz channel.

5. The wireless communication method of claim 2, wherein B0 of the RU allocation subfield is set to 1 and B7-B1 of the RU allocation subfield are set to 69 to indicate the 320 MHz channel.

6. The wireless communication method of claim 3, wherein when a HE/EHT format subfield of the user information field is set to a second value (such as 1), the RU allocation subfield, together with the lower/upper 160 MHz segment subfield, further indicates whether the CTS frame response is to be sent by the STA indicated by an AID12 subfield on the P80, P160 or 320 MHz channel in which at least one 20 MHz channel is punctured.

7. The wireless communication method of claim 6, wherein the P80, P160 or 320 MHz channel in which at least one 20 MHz channel is punctured is one 484+242 tone MRU which results from puncturing any non-primary 20 MHz channel from the P80, one 996+484 tone MRU which results from puncturing any non-primary 40 MHz channel from the P160, one 996+484+242 tone MRU which results from puncturing any non-primary 20 MHz channel from the P160, 2x996+484 tone MRU which results from puncturing any non-primary 40 MHz channel from any consecutive 240 MHz portion of the 320 MHz channel, one 3x996 tone MRU which results from puncturing any non-primary 80 MHz channel from the 320 MHz channel, or one 3x996+484 tone MRU which results from puncturing any non-primary 40 MHz channel from the 320 MHz channel.

8. The wireless communication method of claim 6, wherein the method further comprises:

receiving, by the access point (AP), an CTS frame response, wherein the CTS frame response depends on the RU allocation information indicated in the RU allocation subfield, the lower/upper 160 MHz segment subfield of a corresponding user information field in the MU-RTS trigger frame and a channel puncturing

pattern indicated in a most recently received information element by the STA.

9. The wireless communication method of claim 8, wherein the information element which indicates the channel puncturing pattern is an EHT Operation element and the EHT Operation element comprises an EHT Operation Information field.

10. The wireless communication method of claim 9, wherein the EHT Operation Information field comprises a Channel Width subfield, a (Channel Center Frequency Segment 0) CCFS0 subfield, a (Channel Center Frequency Segment 1) CCFS1 subfield, and a Punctured Channel Indication subfield.

11. The wireless communication method of claim 3, wherein in the user information field addressed to STA2, the lower/upper 160 MHz segment subfield is set to 0, and B0 and B7-B1 of the RU allocation subfield are set to 0 and 67, respectively.

12. The wireless communication method of claim 11, wherein an EHT Operation element received by STA2 indicates that the third lowest frequency 20 MHz channel in the P80 is punctured; and the method further comprises:

receiving, by the access point (AP), a CTS frame response from STA2 in a non-HT duplicate PPDU on a 484+242 tone MRU comprising the P20 and S40.

13. The wireless communication method of any one of claims 1 to 12, wherein the MU-RTS trigger frame comprises a HE/EHT format subfield of a user information field to indicate a HE/EHT subfield.

14. The wireless communication method of any one of claims 1 to 12, wherein when a HE/EHT format subfield of a user information field is set to a second value, an RU allocation subfield, together with a lower/upper 160 MHz segment subfield, indicates how the CTS frame response is to be sent by the STA.

15. A wireless communication method, comprising:

receiving, by a station (STA) of a plurality of STAs, a multi-user ready-to-send (MU-RTS) trigger frame from an access point (AP), wherein the MU-RTS trigger frame indicates whether a clear-to-send (CTS) frame response is to be transmitted by the STA of the plurality of STAs on a primary 20 MHz channel (P20), a primary 40 MHz channel (P40), a primary 80 MHz channel (P80), a primary 160 MHz channel (P160), or a 320 MHz channel, and at least one 20 MHz channel is punctured in the P80, the P160, or the 320 MHz channel.

16. The wireless communication method of claim 15, wherein each user information field of the MU-RTS trigger frame comprises a subfield and an RU allocation subfield, and the subfield and the RU allocation subfield of each user information field in the MU-RTS trigger frame indicate RU allocation information.

17. The wireless communication method of claim 16, wherein the subfield of each user information field in the MU-RTS trigger frame comprises a lower/upper 160 MHz segment subfield.

18. The wireless communication method of claim 17, wherein the lower/upper 160 MHz segment subfield is set to a first value (such as 0) to indicate the P20, the P40, the P80, or the P160; while the lower/upper 160 MHz segment subfield is set to a second value (such as 1) to indicate the 320 MHz channel.

19. An access point (AP), comprising:

a memory;

a transceiver; and

a processor coupled to the memory and the transceiver;

5 wherein the processor is configured to perform the wireless communication method according to any one of claims 1-14.

20. A station (STA), comprising:

a memory;

a transceiver; and

10 a processor coupled to the memory and the transceiver;

wherein the processor is configured to perform the wireless communication method according to any one of claims 15-18.